This listing of claims will replace all prior versions, and listings, of claims in the application:

Listing of Claims:

Claims 1 - 22 (canceled)

Claim 23 (new): An arrangement for distance measurements having a Frequency shifted laser radiation source comprising

an object detection sensor; and

a frequency shifted feedback laser resonator having a pumped gain medium therein so as to emit laser light having a plurality of frequency components changing with time in a chirping manner for irradiation of an object with laser light radiation;

the laser radiation being usable for determinations of distances of objects when using the object detection sensor which receives laser light radiation coming from an object illuminated with the emitted light and being at a distance to be determined and laser light radiation not coming from the object is brought to interference so as to detect a beat signal of the plurality of frequency components that change with time in a chirping manner and which are comprised in the laser light radiation coming from the object at the distance to be determined interfering with the plurality of frequency components that change with time in a chirping manner and which are comprised in the light radiation not coming in from the object and to allow for the determination of the distance of the object from the beat signal;

wherein the frequency shifted feedback laser radiation source further comprises a means for injection of narrow banded non-pumping seed laser light into the resonator and a means for modulation for adjusting the narrow banded seed laser light and the chirp rate to one another such that for a given distance the intensity of the beat signal is increased.

Claim 24 (new): The arrangement according to claim 23, wherein the means for modulating is a means for modulating the seed laser light.

Claim 25 (new): The arrangement according to claim 24, wherein the means for modulating the seed laser light is a means for amplitude modulation of the seed laser light.

Claim 26 (new): The arrangement according to claim 24. wherein the means for modulating the seed laser light is a means for phase modulation of the seed laser light.

Claim 27 (new): The arrangement according to 23, wherein the seed light has a wavelength close to the wavelength where the gain of the pumped gain medium is unity so that amplification of the seed laser light occurs at latest after a few resonator round trips.

Claim 28 (new): The arrangement according to claim 23, wherein the means for modulation is adapted to vary the modulation frequency around a signature frequency of

$$\delta\nu = \alpha \times c \times \delta_1,$$

wherein

α = chirp rate,

c = speed of light, and

δ_1 = distance to be determined.

Claim 29 (new): The arrangement according claim 28, wherein the modulation frequency is periodically varied around the signature frequency of $\delta\nu = \alpha \times c \times \delta_1$.

Claim 30 (new): The arrangement according to claim 29, wherein the means for modulation is adapted to vary the modulation frequency periodically linear with time.

Claim 31 (new): The arrangement according to claim 23, wherein the means for injection of seed laser light is an injection laser adapted to increase the beat intensity of the frequency shifted laser emitted frequency components at the object sensor beyond the intensity which can be obtained with spontaneous emission in the resonator of the frequency shifted feedback laser only.

Claim 32 (new): The arrangement according to claim 31, wherein the injection laser injects the non-pumping injection laser light into the gain medium of the frequency shifted feedback laser.

Claim 33 (new): The arrangement according claim 32, wherein the injection laser has a frequency width of less than 5% of the gain of the frequency shifted feedback laser radiation gain medium.

Claim 34 (new): The arrangement according to claim 33, wherein the injection laser is a single mode laser.

Claim 35 (new): The arrangement according to claim 34, wherein the gain medium of the frequency shifted feedback laser is an optical fiber internal to the resonator and/or constituting the resonator.

Claim 36 (new): The arrangement to claim 35, wherein a means is provided for changing the seed frequency in a stepwise manner and wherein said means for changing is adapted to maintain the seed frequency constant for a given measuring time T and/or to wobble around an average value of a respective seed frequency value.

Claim 37 (new): The arrangement according to claim 36, including a filter for filtering the beat intensity related object sensor signals determined at the object detecting sensor.

Claim 38 (new): The arrangement according to claim 37, wherein the filter is adapted for filtering of components changing with the seed frequency.

Claim 39 (new): The arrangement according to claim 38, including a signal amplification for object detection sensor signals having an amplification stage subsequent to a filter stage and at least one regulating or control circuit for setting a given amplification.

Claim 40 (new): The arrangement according to claim 39, including a stage for determining a distance in response to an object detection sensor signal signature as a function of seed frequencies.

Claim 41 (new): The arrangement according to claim 40, wherein the stage for determining the distance according to the object detection sensor signal signature in response to the seed frequency is adapted to determine the distance in response to reaching a maximum value of the object detecting sensor signal at a given frequency and/or in response to the given amplification value of the object detection sensor signal when changing the seed frequency and/or in response to a value within a frequency window around the seed frequency and/or in response to the strength of the seed frequency component in the object detecting sensor signal.

Claim 42 (new): The arrangement according to claim 42, wherein:

a stage for changing the seed frequency with time is provided and an object detection sensor signal evaluation stage determines as a distance related measurement value a value representative for the time until a predetermined object signature is obtained by measuring the time until a maximum or threshold value is reached; and

wherein an analog maximum hold circuit for detection of a temporal signal curve having a related digital register for writing in of a sweep time or counter value for the seed frequency and further having a circuit for determination of a sweep-time or counter value for the seed frequency to be registered in response to reaching an analog threshold or maximum value or wherein a derivation stage for deriving of the frequency dependent object detection sensor signal signature is provided.

Claim 43 (new): The arrangement according to claim 42, wherein:

the object detection sensor is adapted for receiving and /or for evaluation of radiation received back from the irradiation of the object on the one hand and other light received back from the object on the other hand, simultaneously or in a timely close sequential manner;

and wherein a frequency shifted feedback radiation source is adapted for emission in the infrared range and the object detection sensor is further adapted for receiving a visible light as said other light from the object.

Claim 44 (new): A method for position sensitive object distance determination using a frequency shifted feedback laser radiation source for object irradiation with laser radiation usable for distance measurement and a position sensitive object detection sensor;

wherein the beat intensity of laser radiation coming in from the object interfering with laser radiation coming in not from the object at the position sensitive sensor is determined as a distance indicative signal;

and wherein the beat intensity is increased beyond the variations obtainable by fluctuations of the frequency shifted feedback radiation source by providing a modulation at the frequency shifted feedback radiation source for object irradiation.